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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/115,206	04/02/2002	Charles Q. Meng	04676.105046 (1209)	9395

7590

08/01/2003

Sherry M. Knowles, Esq.  
KING & SPALDING  
45th Floor  
191 Peachtree Street, N.E.  
Atlanta, GA 30303

EXAMINER

KILLOS, PAUL J

ART UNIT

PAPER NUMBER

1625

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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VD4 Rec'd

AUG 05 2003



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
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DATE MAILED:

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This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

**NOTICE OF ALLOWABILITY**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☐ This communication is responsive to \_\_\_\_\_

☒ The allowed claim(s) is/are 1-26

☐ The drawings filed on \_\_\_\_\_ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. \_\_\_\_\_

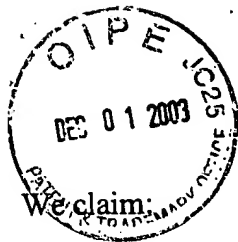
☐ including changes required by the proposed drawing correction filed on \_\_\_\_\_, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftperson.

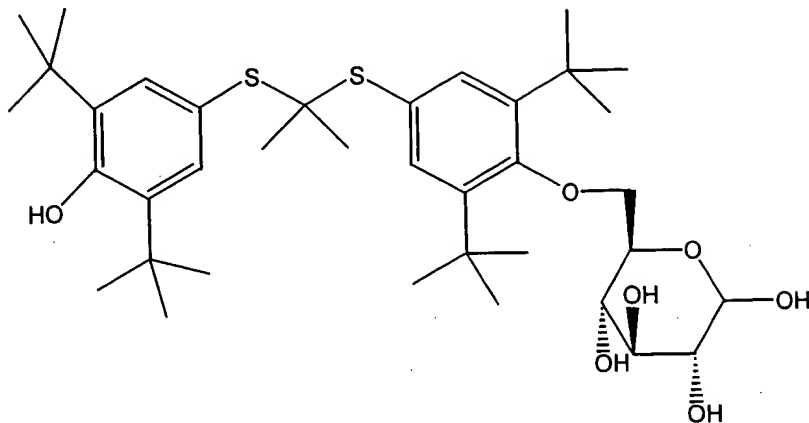
☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.



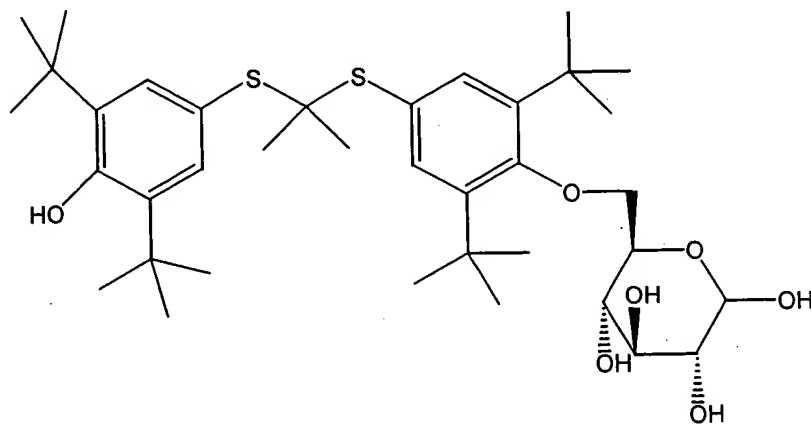
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1. A compound of the formula

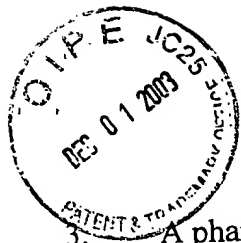


or a pharmaceutically acceptable salt or ester thereof.

2. A compound of the formula



or a pharmaceutically acceptable salt thereof.

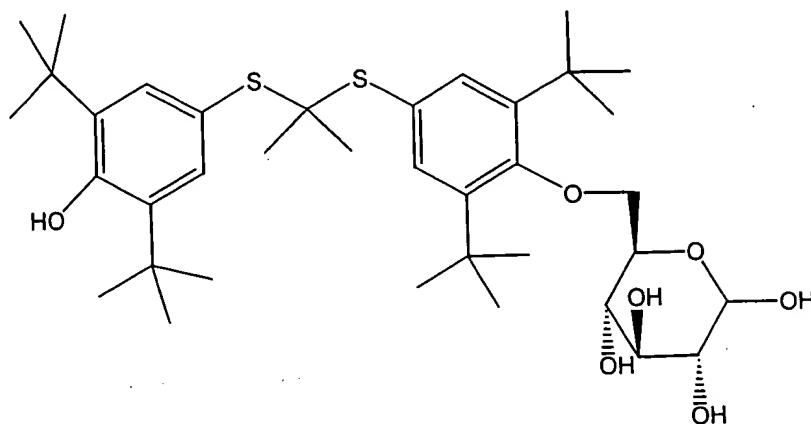


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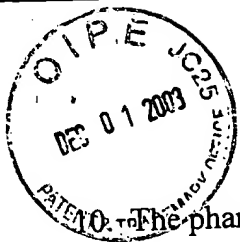
TECH CENTER 1600/2900

3. A pharmaceutical composition comprising a compound of the formula



together with a pharmaceutically acceptable carrier.

4. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for oral administration.
5. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for topical administration.
6. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for intravenous administration.
7. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for subcutaneous administration.
8. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for intraperitoneal administration.
9. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for intramuscular administration.

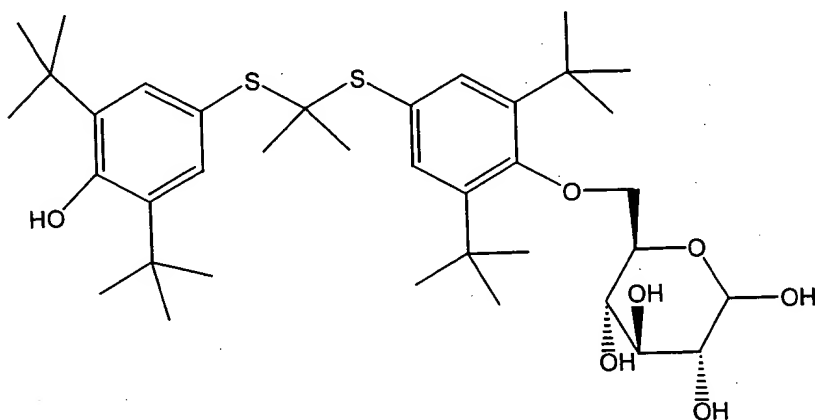


10. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for submucosal administration.

11. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for inhalation administration.

12. The pharmaceutical composition of Claim 3, wherein the pharmaceutically acceptable carrier is suitable for transdermal administration.

13. A method for the treatment of an inflammatory disorder, comprising administering to a host in need thereof an effective treatment amount of a compound of the formula



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or a pharmaceutically acceptable salt thereof.

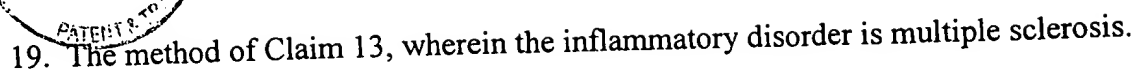
14. The method of Claim 13, wherein the inflammatory disorder is arthritis.

15. The method of Claim 13, wherein the inflammatory disorder is rheumatoid arthritis.

16. The method of Claim 13, wherein the inflammatory disorder is osteoarthritis.

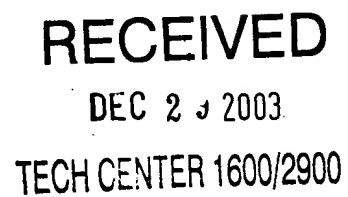
17. The method of Claim 13, wherein the inflammatory disorder is asthma.

18. The method of Claim 13, wherein the inflammatory disorder is dermatitis.



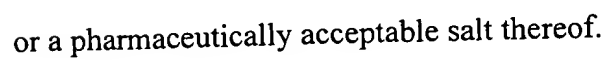
20. The method of Claim 13, wherein the inflammatory disorder is psoriasis.

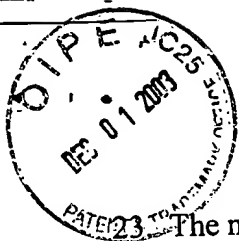
21. A method for the treatment of a disorder mediated by VCAM-1, comprising administering to a host in need thereof an effective treatment amount of a compound of the formula



or a pharmaceutically acceptable salt thereof.

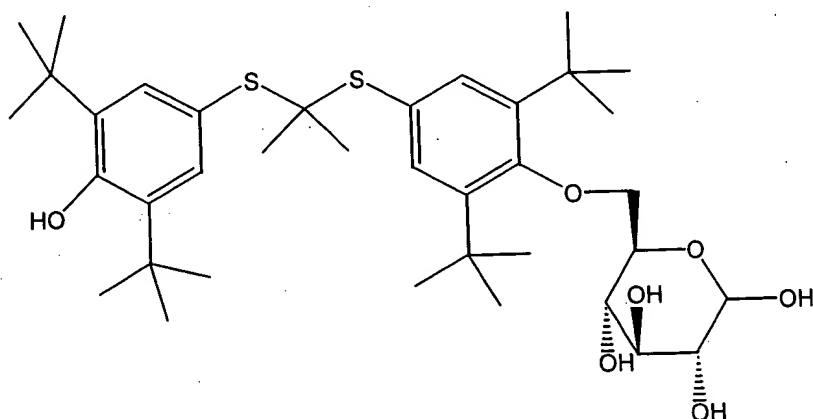
22. A method for the treatment of a cardiovascular disorder, comprising administering to a host in need thereof an effective treatment amount of a compound of the formula





The method of Claim 22, wherein the cardiovascular disorder is selected from the group consisting of atherosclerosis, post-angioplasty restenosis, coronary artery disease, angina and small artery disease.

24. A method for suppressing the expression of a redox-sensitive gene or activating a gene that is suppressed through a redox-sensitive pathway, comprising administering to a host in need thereof an effective treatment amount of a compound of the formula

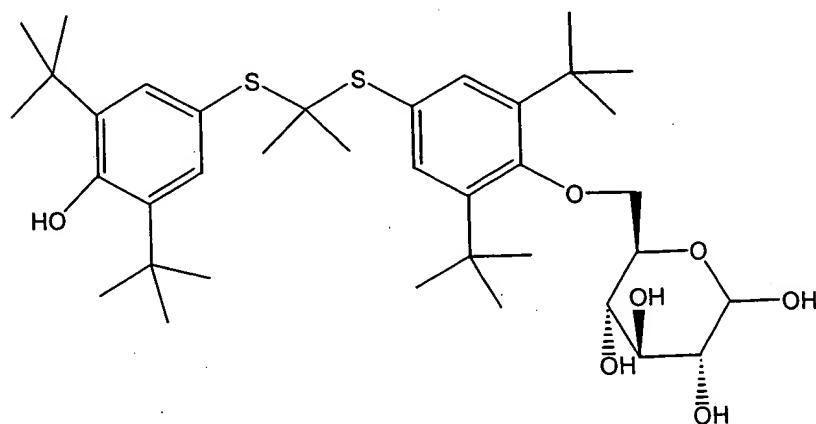


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or a pharmaceutically acceptable salt thereof.

25. The method of Claim 24, wherein the redox-sensitive gene expresses cytokines.

26. A method of treating an immune response, comprising administering to a host in need thereof an effective treatment amount of a compound of the formula



or a pharmaceutically acceptable salt thereof.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/815,262  
Applicant : Charles Q. Meng  
Filed : March 21, 2001  
TC/A.U. : 1621  
Examiner : Jean F. Vollano

Confirmation No. 4560

Docket No. : 04676.105055 (ATH 114US)  
Customer No. : 20786

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Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

November 26, 2003

**REQUEST FOR CORRECTED FORMAL FILING RECEIPT**

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Sir:

Applicants received a Formal Filing Receipt from the U.S. Patent and Trademark Office mailed on August 14, 2001 which contains an error in the priority data.

Applicants request a new Formal Filing Receipt making the changes indicated below.

To the "Domestic Priority data as claimed by the applicant" please add:

" This application is a CIP of 09/370,046, filed 8/6/1999, which is a CON of 09/079,213, filed 5/14/1998."

The correct priority is claimed on the front page of the application, a copy of which is submitted herewith.

Respectfully submitted,

Sherry M. Knowles, Esq.  
Reg. No. 33,052

KING & SPALDING  
191 Peachtree Street  
Atlanta, GA 30303  
(404) 572-3541





04676.105055  
09/815,262

**THIOKETALS AND THIOETHERS FOR INHIBITING**  
**THE EXPRESSION OF VCAM-1**

**RELATIONSHIP TO PRIOR APPLICATIONS**

5

This application claims priority to U.S. Provisional Patent Application No. 60/191,046, filed on March 21, 2000. This application also claims priority to pending U.S. Application No. 09/370,046, filed August 6, 1999, and U.S. Patent Application No. 09/079,213, filed May 14, 1998, and granted November 14, 2000 as U.S. Patent No. 6,147,250.

10

**FIELD OF THE INVENTION**

15

This invention is in the area of compounds, compositions and methods for inhibiting the expression of VCAM-1 and, in particular, for treating diseases mediated by VCAM-1, including inflammatory disorders, cardiovascular diseases, ocular diseases, autoimmune diseases, neurological disorders, and cancer. The invention is further in the area of compounds, compositions and for treating hypercholesterolemia and hyperlipidemia.

20

**BACKGROUND OF THE INVENTION**

**Expression of VCAM-1**

Adhesion of leukocytes to the endothelium represents a fundamental, early event in a wide variety of inflammatory conditions, including atherosclerosis, autoimmune disorders and bacterial and viral infections. Leukocyte recruitment to the endothelium is started when inducible adhesion molecule receptors on the surface of endothelial cells interact with counterreceptors on immune cells. Vascular endothelial cells determine which type of leukocytes (monocytes, lymphocytes, or neutrophils) are recruited, by selectively expressing specific adhesion molecules, such as vascular cell adhesion molecule-1 (VCAM-1), intercellular adhesion molecule-1 (ICAM-1), and E-selectin. In the earliest stage of the atherosclerotic lesion, there is a localized endothelial expression of VCAM-1 and selective recruitment of mononuclear leukocytes that express the integrin counterreceptor VLA-4. Because of the selective expression of VLA-4 on monocytes and lymphocytes, but not

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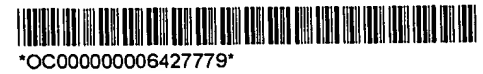
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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/815,262	03/21/2001	1614	879	04676.105051 (ATH114US)		71	2

20786  
KING & SPALDING  
191 PEACHTREE STREET, N.E.  
ATLANTA, GA 30303-1763

CONFIRMATION NO. 4560  
UPDATED FILING RECEIPT



Date Mailed: 08/15/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Charles Q. Meng, Alpharetta, GA;  
Lee K. Hoong, Suwanee, GA;  
Patricia K. Somers, Fort Collins, CO;

Domestic Priority data as claimed by applicant

THIS APPLN CLAIMS BENEFIT OF 60/191,046 03/21/2000  
THIS APPLN IS A CIP OF 09/370,046 FILED 8/6/99, WHICH IS A CON OF

Foreign Applications

09/079,213 FILED 5/14/98.

If Required, Foreign Filing License Granted 05/02/2001

Projected Publication Date: 11/22/2001

Non-Publication Request: No

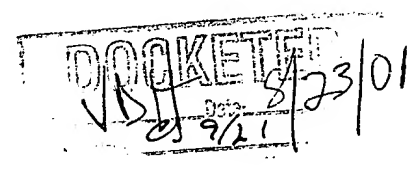
Early Publication Request: No

\*\* SMALL ENTITY \*\*

Title

Thioketals and thioethers for inhibiting the expression of VCAM-1

Preliminary Class





514

Data entry by : WOLDEYES, TEGUEST

Team : OIPE

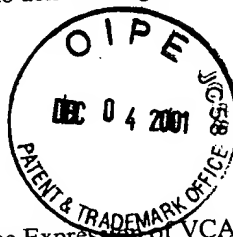
Date: 08/15/2001



The U.S.P.T.O official mailroom stamp affixed hereto acknowledges receipt of the items listed below.

Applicant: Meng *et al.*

Serial No.: 09/815,262  
Filed: March 11, 2001

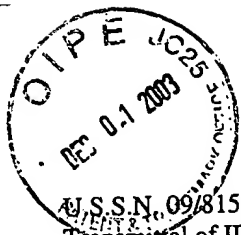


Title: Thioketals and Thioetereals for Inhibiting the Expression of VCAM-1

Papers Submitted: Information Disclosure Statement Transmittal Letter  
Information Disclosure Statement Form PTO 1449,  
with 57 Attachments

Attorney: Clark G. Sullivan, Esq.  
Date Mailed: November 6, 2001  
File No.: ART 114CIP (04676.105055)

12/11/01  
1711/01



04676.105055

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Meng *et al.*

Serial No.: 09/815,262

Art Unit: 1614

Filed: March 11, 2001

Examiner: Unknown

For: Thioketals and Thioethers for Inhibiting the Expression of VCAM-1

Assistant Commissioner for Patents  
Box IDS  
Washington, DC 20231

**Information Disclosure Statement Transmittal**

Sir:

Pursuant to the duty of disclosure under 37 CFR §§ 1.56, 1.97 and 1.98, Applicants cite the publications listed on the accompanying PTO-1449. Copies of all listed references are enclosed.

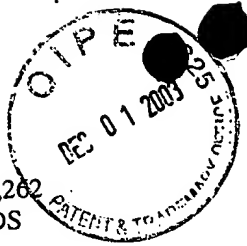
Please charge any requisite fees associated with this paper to Deposit Account No. 11-0980.

Respectfully submitted,

Clark G. Sullivan  
Reg. No. 36,942

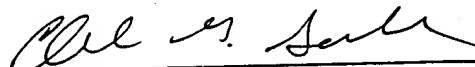
KING & SPALDING  
191 Peachtree Street  
Atlanta, GA 30303  
404-572-2882 (Telephone)  
404-572-5145 (Facsimile)

U.S.S.N. 09/815,262  
Transmittal of IDS



**CERTIFICATE OF MAILING (37 CFR 1.8a)**

I hereby certify that this Information Disclosure Statement, along with any paper referred to as being attached or enclosed, is being deposited with the United States Postal Service on the date shown below with sufficient postage as first-class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

  
Clark G. Sullivan

Date: November 6, 2001

File No.: ATH114CIP (04676.105055)